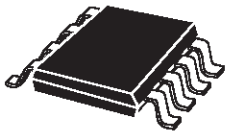
查询STM2DPFS30L供应商

STM2DPFS30L

P - CHANNEL 30V - 0.145Ω - 2A MiniS0-8 STripFET™ MOSFET PLUS SCHOTTKY RECTIFIER

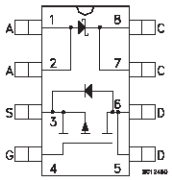
PRELIMINARY DATA

MAIN PRODUCT CHARACTERISTICS			
MOSFET	V_{DSS}	$R_{DS(on)}$	I_D
	30V	<0.165Ω	2A
SCHOTTKY	$I_{F(AV)}$	V_{RRM}	$V_{F(MAX)}$
	1A	40V	0.55V



MiniSO-8

INTERNAL SCHEMATIC DIAGRAM



DESCRIPTION:

This product associates the latest low voltage StripFET™ in p-channel version to a low drop Schottky diode. Such configuration is extremely versatile in implementing a large variety of DC-DC converters for printers, portable equipment, and cellular phones.

New MiniSO-8 package features:

- Half footprint area versus standard SO-8, for application where minimum circuit board space is necessary.
- Extremely low profile, ideal for low thickness equipment.

MOSFET ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{DS}	Drain-source Voltage (V_{GS} = 0)	30	V
V_{DGR}	Drain- gate Voltage (R_{GS} = 20 kΩ)	30	V
V_{GS}	Gate-source Voltage	± 20	V
I_D	Drain Current (continuous) at T_c = 25 °C	2	A
I_D	Drain Current (continuous) at T_c = 100 °C	1.3	A
I_{DM}(•)	Drain Current (pulsed)	8	A
P_{tot}	Total Dissipation at T_c = 25 °C	1.25	W

SCHOTTKY ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		40	V
$I_{F(RMS)}$	RMS Forward Current		2	A
$I_{F(AV)}$	Average Forward Current	T_a=60 °C δ =0.5	1.2	A
I_{FSM}	Surge Non Repetitive Forward Current	tp= 10 ms Sinusoidal	5.5	A
dv/dt	Critical Rate Of Rise Of Reverse Voltage		10000	V/µs

(•) Pulse width limited by safe operating area

Note: For the P-CHANNEL MOSFET actual polarity of voltages and current has to be reversed

THERMAL DATA

$R_{thj\text{-}amb}$	(*) Thermal Resistance Junction-ambient MOSFET	100	$^oC/W$
T_{stg}	Storage Temperature Range Maximum	-65 to 150	^oC
T_j	Junction Temperature	150	^oC

(*) Mounted on a 1 in^2 pad of 2oz Cu in FR-4 board

MOSFET ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^oC unless otherwise specified)

OFF

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{(BR)DSS}$	Drain-source Breakdown Voltage	I_D = 250 µA V_{GS} = 0	30			V
I_{DSS}	Zero Gate Voltage Drain Current (V_{GS} = 0)	V_{DS} = Max Rating V_{DS} = Max Rating T_c = 125 ^oC			1 10	µA µA
I_{GSS}	Gate-body Leakage Current (V_{DS} = 0)	V_{GS} = ± 20 V			± 100	nA

ON (*)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS} I_D = 250 µA	1	1.7	2.5	V
$R_{DS(on)}$	Static Drain-source On Resistance	V_{GS} = 10V I_D = 1 A V_{GS} = 4.5V I_D = 1 A		0.145 0.18	0.165 0.2	Ω
$I_{D(on)}$	On State Drain Current	V_{DS} > $I_{D(on)}$ x $R_{DS(on)max}$ V_{GS} = 10 V	2			A

DYNAMIC

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
g_{fs} (*)	Forward Transconductance	V_{DS} > $I_{D(on)}$ x $R_{DS(on)max}$ I_D =1 A		2		S
C_{iss} C_{oss} C_{rss}	Input Capacitance Output Capacitance Reverse Transfer Capacitance	V_{DS} = 25 V f = 1 MHz V_{GS} = 0		510 170 55	660 220 72	pF pF pF

ELECTRICAL CHARACTERISTICS (continued)

SWITCHING ON

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$t_{d(on)}$ t_r	Turn-on Delay Time Rise Time	V_{DD} = 15 V I_D = 1.5 A R_G = 4.7 Ω V_{GS} = 4.5 V (Resistive Load, see fig. 1)		14.5 37	19 48	ns ns
Q_g Q_{gs} Q_{gd}	Total Gate Charge Gate-Source Charge Gate-Drain Charge	V_{DD} = 24 V I_D = 3 A V_{GS} = 5 V		5.5 1.7 1.8		nC nC nC

SWITCHING OFF

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$t_{d(off)}$ t_f	Turn-off Delay Time Fall Time	V_{DD} = 15 V I_D = 1.5 A R_G = 4.7 Ω V_{GS} = 4.5 V (Resistive Load, see fig. 1)		88 23		ns ns

SOURCE DRAIN DIODE

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{SD} I_{SDM}(•)	Source-drain Current Source-drain Current (pulsed)				2 8	A A
V_{SD} (*)	Forward On Voltage	I_{SD} = 2 A V_{GS} = 0			1.2	V
t_{rr} Q_{rr} I_{RRM}	Reverse Recovery Time Reverse Recovery Charge Reverse Recovery Current	I_{SD} = 2 A di/dt = 100 A/µs V_{DD} = 15V T_j = 150 °C		 tbd		ns nC A

(*) Pulsed: Pulse duration = 300 µs, duty cycle 1.5 %
(•) Pulse width limited by safe operating area

SCHOTTKY STATIC ELETTRICAL CHARACTERISTICS

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_R(*)	Reversed Leakage Current	T_J= 25 °C V_R=40V T_J= 100 °C V_R=40V		 1.5	40 5	µA mA
V_F(*)	Forward Voltage drop	T_J= 25 °C I_F=1A T_J= 100 °C I_F=1A T_J= 25 °C I_F=2A T_J= 100 °C I_F=2A		 0.45	0.55 0.51 0.7 0.7	V V V V

Fig. 1: Switching Times Test Circuits For Resistive Load

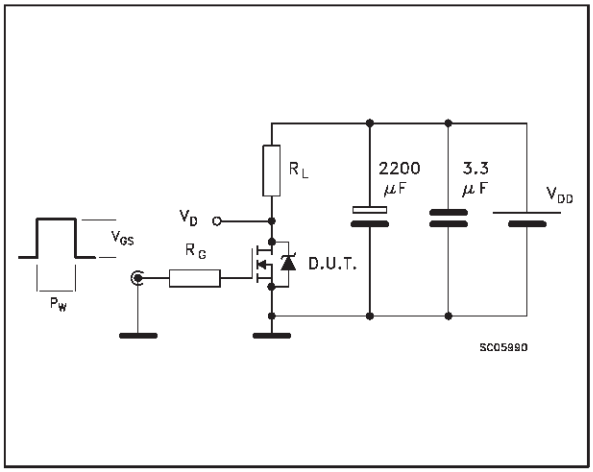
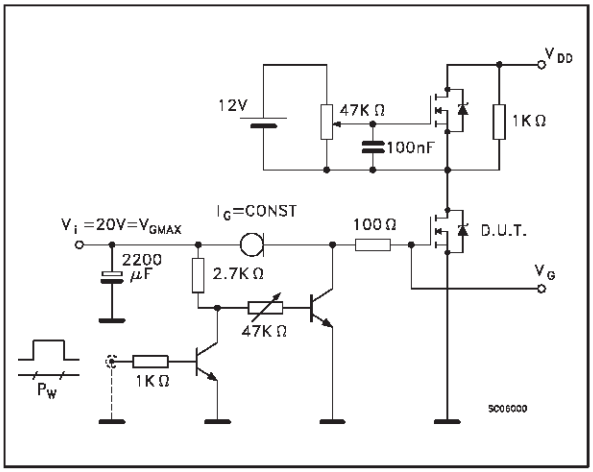
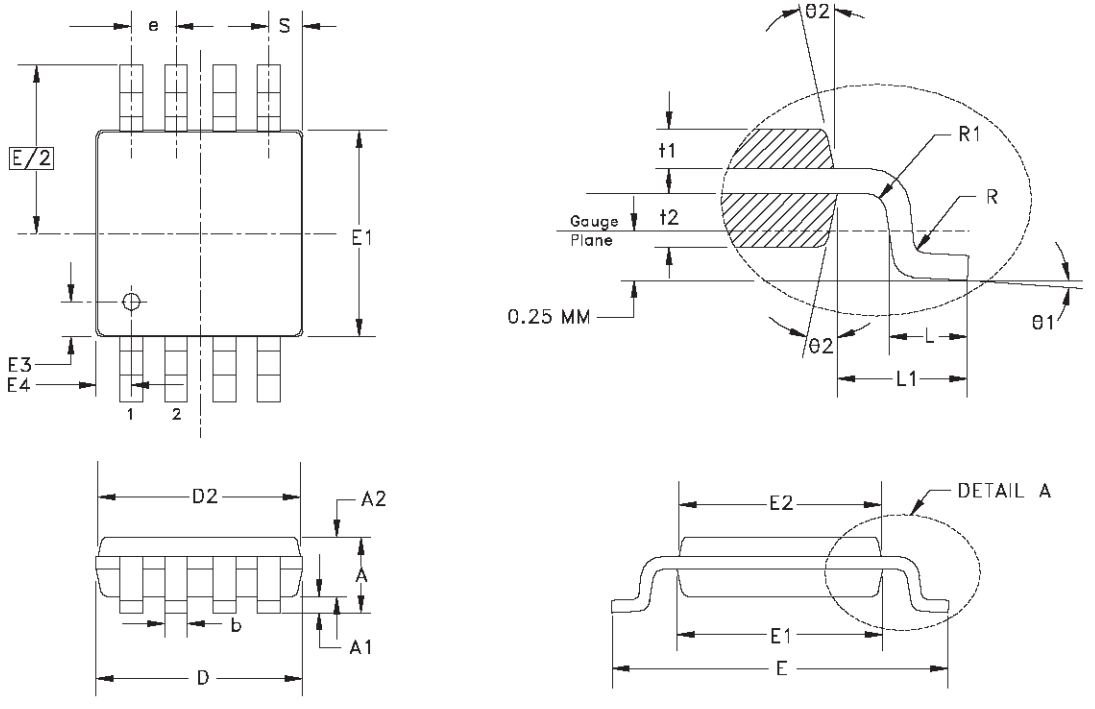


Fig. 2: Gate Charge test Circuit



MiniSO-8 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A		1.10				
A1		0.10				
A2		0.86				
D		3.00				
D2		2.95				
E		4.90				
E1		3.00				
E2		2.95				
E3		0.51				
E4		0.51				
R		0.15				
R1		0.15				
t1		0.31				
t2		0.41				
θ1		3.0°				
θ2		12.0°				
L		0.55				
L1		0.95				
e		0.65				
S		0.525				



Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specification mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a trademark of STMicroelectronics

© 1999 STMicroelectronics – Printed in Italy – All Rights Reserved

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - China - Finland - France - Germany - Hong Kong - India - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - U.S.A.

http://www.st.com